

DIRECTOR'S OFFICE (WASHINGTON, DC AND DENVER, COLORADO)

Update on the FY03 budget: The Science and Technology (S&T) Program received \$9,980,000 before underfinancing. From that amount, \$3,613,000 (before underfinancing) is for Desalination Research Act activities, and work is under way to determine what is necessary and appropriate, given Congressional direction, to construct a desalination research facility in **New Mexico**. Congress also continued the research authorities under that Act for 2 years. In addition, funding (\$1,316,400 after underfinancing) was included under Reclamation's drought program for weather modification research funds. Congress also directed that a report be provided to them on research conducted by Reclamation on alkali-silica reaction, technologies to mitigate its impacts, and the possible implications of this problem and technology at Reclamation facilities. (Shannon Cuniff, 202-513-0682)

Update on the FY04 President's proposed budget: \$10,435,000. The budget proposal contains higher-than-historical levels of funding for desalination research. In addition to budget provided for desalination within the S&T line items, new line items were established for the Western Water Initiative. This initiative includes funding for desalination, collaborative research to enhance our ability to address endangered species and other environmental issues, and peer review. A total of \$2,750,000 is proposed for the Expanded S&T Program Initiative. Also added to the budget is \$500,000 for on-the-ground applications of innovative applications of technologies conducted in partnership with state, local, and/or tribal entities to combat tamarisk and other aquatic invasive species in the **Southwest**. Planning is underway regarding where new funds will be directed, and how projects for the nondesalination part of the Expanded S&T Program Initiative and Invasives Species Initiative will be identified and selected. (Shannon Cuniff, 202-513-0682)

Welcome to George Matanga, the new S&T coordinator for the **Mid-Pacific Region**. Many thanks to Michael Tansey, who is moving on to other expanded responsibilities in MP. The S&T program benefited significantly from his contributions, as well as his leadership. (Shannon Cuniff, 202-513-0682)

S&T workshop on strategic planning and competitive proposals to peer review processes is in March.

IMPROVING INFRASTRUCTURE RELIABILITY

The technical proposal submittal by Alstom Power has been reviewed and comments coordinated at a meeting at **Folsom**. A contract to acquire and install a high-voltage generator [Powerformer (TM)] for **Folsom Powerplant** is expected to be awarded in spring 2003, and the generator is expected to be operational by late 2004. High-voltage generation research is expected to continue throughout the pilot project phase. High-voltage generation promises to reduce maintenance costs and environmental risks, while improving efficiency and reliability. (George Girgis, 303-445-2310)

A statement of work has been developed for a doubly-fed machine, should it become necessary to contract it out due to staff limitations. This work is to be performed in parallel with the **Mt. Elbert** Life Extension study scheduled for later in FY03. If viable, a doubly-fed machine may prove to be more efficient than the conventional generator / motor. (Gary Osburn 303-445-2297).

The Mechanical Equipment Group is reviewing the final design for a rotor turning gear for **Green Mountain Powerplant**. We plan to purchase the components in March for installation. The rotor turning gear provides a safe alternative to the potentially dangerous manual method of rotating a generator rotor used by most facilities, and brings us into compliance with hazardous energy-related safety regulations. (Roger Cline, 303-445-2293)

Regarding operational and environmental constraints and their impact on ancillary services, the ancillary services monitor for **Hoover Powerplant** was modified to account for condensing units as nonspinning reserves. In addition, the monitor was converted to operate on the new SCADA platform. During March, work will be initiated to add monitoring of voltage services in both the **Lower Colorado and Mid-Pacific Regions**. Electric power production at Reclamation powerplants can be enhanced by providing the capability to monitor and schedule ancillary service production. (Steve Stitt, 303-445-2316)

Regarding optimization improvements to increase energy production and extend equipment life, a basic review of the Near Realtime Optimization package being developed by BPA (Bonneville Power Administration) was performed. Although BPA funds this work (and partnering was not an option), results will further our optimization research efforts. During March, additional staff will be obtained to assist in development of the online performance monitoring scheme for installation at **Hoover Powerplant**. Improved monitoring and analysis capabilities will assist in relating changes in equipment condition to measured performance changes. (Steve Stitt, 303-445-2316)

IMPROVING DECISION SUPPORT

Organized a meeting bringing together modeling interests from **MP and PN and TSC** to discuss current research efforts in modeling and find areas of synergy. In addition, plans were developed to provide a web page that identifies the various models available and their potential uses for water managers. Modelers from National Heritage Institute (NHI) also briefed us on its efforts to use modeling in **California** to determine whether and how conjunctive management of supplies can increase yield of water and restore rivers. NHI was so impressed with Reclamation capabilities, they proposed a partnership with us to seek funding support from CalFed research funds. (Shannon Cuniff, 202-513-0682)

Reclamation participated in the Annual Meeting of the American Meteorological Society, presenting two invited papers, one at the Symposium on Impacts of Water Variability entitled *Critical hydrometeorological needs and integrated, multi-disciplinary Decision Support Systems for water resource managers in the Bureau of Reclamation* by Dave Matthews and Don Frevert. Dr. Robert Hirsch, Assistant Director for Water Resources, USGS, provided the keynote address to this session, and lead speakers included Shun McGrath, Western Governors Association, and Kevin Stewart, National Hydrologic Warning Council. (Don Frevert, 303-445-2473)

Dave Matthews also presented an invited paper for Shannon Cuniff entitled *Overview of water resources research issues pertaining to the Bureau of Reclamation* to the 14th Symposium on Global /Climate Change. Dr. Richard Moss, US Global Climate Change Program/ Climate Change Research Program (USGCRP/CCRP) Deputy Program Manager initiated this session with agency representatives from NOAA, DOE, NASA, and NCAR. These outreach papers initiated discussions with a number of managers in other agencies to further partner and leverage S&T funding to meet needs of Reclamation's water managers and planners. (Dave Matthews, 303 445-2470)

Reclamation continued to interact with the Water Cycle team of the CCRP Strategic Plan to provide specific examples of water management needs for short, medium, and long range forecasts, and how these can be directly integrated into decision support systems used by Reclamation's water managers in major river basins of the West. Participants on this team represent, NOAA, NASA, DOE, NSF, EPA, USDA, and DOI. (Dave Matthews, 303 445-2470)

The **Yakima** study team held a conference call to review progress and discuss priorities for the Yakima fishery habitat model. A top priority is the completion of the Range of Variability Analysis, which will help assess the response of endangered species to a variety of hydrologic conditions. (Don Frevert, 303-445-2473; Mark Bowen, 303-445-2222)

As part of the S&T Program's "Improve Streamflow Forecasts," eight Reclamation water operations people, representing the **TSC, Great Plains Region, Montana Area Office, Nebraska-Kansas Area Office, and the McCook Field Office**, met with NWS staff from the NWS Central Region Headquarters, and the Missouri Basin River Forecast Center (MBRFC). The meeting was held at the MBRFC office in Pleasant Hill, Missouri. The primary purpose of the meeting was to further develop Reclamation and MBRFC collaboration on improving streamflow forecasts, which incorporate short-term to seasonal water supply and demand forecasts. One key area of discussion was on the development and implementation of the NWS Advanced Hydrologic Prediction Services (AHPS). After the meeting, a list of 20 action items was developed. The benefits of the meeting were a better understanding of each agency's needs and products, allowing staff from the two agencies to get to know each other, and developing interagency action item tasks that should lead to improved streamflow forecasts for Reclamation's water management activities in the northern Great Plains. (Curt Hartzell, 303-445-2482)

Curt Hartzell (86-68510) will attend the Pacific Northwest Weather Workshop 2003 in Seattle, Washington, where he will give a presentation on a new collaborative research project with NASA's Goddard Space Flight Center, Hydrologic Sciences Branch, for *The Use of NASA Land Data Assimilation Products to Improve Flood and Drought Risk Analysis and Forecasting for Water Resources Management in the Columbia River Basin*.

IMPROVING WATER SUPPLY TECHNOLOGIES

The Desalination and Water Purification Technology Progress Plan, also known as the Desalination Research Roadmap, was released in February. It can be viewed at www.usbr.gov/water/desal.html. Comments can also be submitted at this site. After printing, the document it will be distributed to Congress and desalination interests. The National Research Council has identified its committee members who will review the roadmap and has set a meeting in **Denver** on May 13 to solicit comment on the roadmap. (Shannon Cunniff, 202-513-0682)

The Science and Technology Program, in collaboration with the **Northern Colorado Water Conservancy District** and the U.S. Department of Agriculture, sponsored a workshop for northern Colorado's agricultural community, entitled *Stretching Agricultural Water Supplies*, in **Greeley, Colorado**, to explore ways to stretch their limited water supplies. Sessions included water management issues from a local, state, and federal perspective; new technology and funding sources to help irrigators conserve water; and opportunities to cooperate and share resources. The benefits of the workshop were to engage the end users of our research to learn about and discuss challenges, discuss new and emerging water management tools and solutions, ensure that irrigation districts and farmers can remain profitable and viable, and discuss what needs to be done in the future toward developing and implementing solutions that can help make a difference. (Chuck Hennig, 303-445-2134)

The TSC's Water Resources Research Laboratory personnel provided training in the application of acoustic Doppler current profiling (ADCP) technology to **Southern Nevada Water System (SNWS)** staff. The SNWS is a network of treatment and distribution facilities that diverts raw **Colorado River** water from **Lake Mead** and delivers potable water to **Southern Nevada's** municipal water users. SNWS wants to monitor the currents in Lake Mead to improve operations at their water treatment intakes. WRRL engineers developed a training program to assist SNWS in the implementation of their current monitoring program. (Tracy Vermeyen, 303-445-2154)

During February, a site visit was made to the trial recharge site on the **San Xavier Indian Reservation** to coordinate with the field office and reservation staff. They provided the water quality results of RIPZ-11 well, sampled in January 2003. The well is located adjacent to the recharge site and contains ground water 200 feet deep. These data will be used to estimate the potential impact of recharging with **Central Arizona Project (CAP)** water. An intermediate monitoring well was completed at 80 feet below ground surface to monitor recharge progress and determine if a perched water zone develops at that level, and if the CAP water quality has been modified in the recharge process. (Keith Eggleston, 303-445-2464)

March 13- 15, IEEE 7th Working Conference on Current Measurement Technology - Current and Wave Monitoring and Emerging Technologies, **San Diego, California**. A paper entitled *Acoustic Doppler Velocity Measurements Collected Near a Municipal Water Intake, Lake Mead, Nevada-Arizona* will be presented. (Tracy Vermeyen, 303-445-2154)

REGIONAL REPORTS

Members of the interagency Land Retirement Team (Reclamation, Fish and Wildlife Service [FWS], Bureau of Land Management, and the Endangered Species Recovery Program) met with the FWS contaminants division staff in Sacramento to discuss research being conducted on retired agricultural lands in the western San Joaquin Valley of California. Bioaccumulation of selenium on these drainage-impacted lands is a regional issue of concern to potential land managers. Monitoring of soil, groundwater, and biota to date suggests cause for optimism for drainage reduction and wildlife habitat benefits on retired lands. Shallow, saline water tables are declining in response to ceasing irrigation, and selenium concentrations measured in soils, plants, and animals are generally below levels of concern. This research is part of a 5-year demonstration project funded primarily by the Central Valley Project Improvement Act Restoration Fund, supplemented by Reclamation S&T funds. Research results will have direct application to the restoration and management of large tracts of drainage-impacted lands proposed for retirement in the San Joaquin Valley. (Stephen Lee, 559-487-5286; Joe Brummer, 303-445-2457)

Students and teachers from Sierra Elementary School participate in trapping of Kangaroo Rats at the Land Retirement Demonstration Project. Biological diversity has increased on lands retired from irrigated agricultural production in the Central Valley of California.